Observations of Comet 1901 I. *observed at Perth Observatory, Western Australia.*

(*Communicated by W. Ernest Cooke, Government Astronomer.*)

The first record of the appearance of the comet seems to come from the natives in the Balladonia District (south coast), who saw it on the early morning of April 22. They reported it to the telegraph master at Balladonia on that day, and again on the 23rd, and he saw it on the 24th, but did not wire particulars. On the morning of the 24th, however, Mr. Tattersall, head keeper of Cape Leeuwin Lighthouse, noticed and reported a bright comet in the east about 6 A.M. I was in Adelaide at the time, and visited the observatory next morning (25th) and succeeded, in conjunction with Sir Charles Todd, in obtaining glimpses between the clouds and measuring a rough position by means of the equatorial circles. This, I believe, was the first observation made anywhere. It was then so bright that its tail, a triple one, could be seen almost up to sunrise, and its nucleus was visible in the 8-inch telescope for some time after the Sun was above the horizon. Unfortunately it was densely overcast during the remainder of the day, otherwise I think I might have been able to determine its position with the transit circle. It was then rapidly approaching the Sun. In Perth the mornings were densely cloudy until Saturday, April 27, when the first approximate position was obtained ($1^h\ 53^m\ 50^s$ R.A. and 88° 42′ N.P.D.) by means of the circles, but the sky was altogether too bright to obtain a photograph. The only note made as to its physical appearance was, "Comet bright, with two distinct tails." The next two mornings (28th and 29th) were brilliantly clear, but no sign of the comet was visible, although the observer examined the eastern horizon carefully with a good pair of field glasses. On the evening of May 1 it was observed low down near the western horizon, and two photographs (1^m and 10^m exposure) were obtained with the astrographic telescope. From this date until it was lost in the moonlight a long and a short exposure photograph were taken every evening when the state of the weather permitted. On some occasions the comet was just glimpsed for a few seconds, and only circle readings were taken. All the observations were made and plates measured by Mr. Johns, who has had several years' experience at astrographic work at both Greenwich and the Cape, and I think the measures can be taken as accurate, on the whole, to within $0''\cdot5$. With regard to the reductions I am not quite so certain. I have not had the time to obtain plate constants, and in some of the earlier plates it would not be possible, owing to the lack of stars. I have every reason, however, to believe that the orientation of the réseau was very correct. As to the scale value of the réseau, I have applied a correction of $-\frac{1}{250}$ to every difference. This was

obtained from an independent investigation, and appears to be corroborated, *on the average*, by the present stars. I have, of course, reduced my réseau coordinates to R.A. by the usual formula, and corrected for curvature, but *not* for differential refraction and aberration.

The discordances amongst the individual results appear to me to be large, but they do not seem to indicate any systematic error of reduction. They may be, and probably are, due to wrong positions for the stars at 1901·0, either through inaccuracies in the original observations, or else proper motion. I think, however, that the mean of the positions obtained for each day will be a good determination of the comet's place.

Position of Comet a 1901 *from Photographs.*

Date G.M.T. d h m s	Name of Object.	Rect. Coords. R.A.	Dec.	Mean Pos. of stars 1901·0. R.A. h m s	N.P.D. ° ′ ″	*dα.* m s	*dδ.* ′ ″	Mean Pos. ☄ 1901·0. R.A. h m s	N.P.D. ° ′ ″
May 1 22 34 32	☄	42·967	13·800						
	4165 P.	30·531	15·361	3 26 0·94	90 49 7·8	−4 8·74	− 7 46·4	3 21 52·20	90 41 21·4
3 22 23 37	☄	43·174	13·854						
	4537 P.	53·528	26·729	3 47 7·13	91 26 43·2	+3 26·33	−64 7·1	3 50 33·46	90 22 36·1
	4540 P.	53·157	20·788	3 47 14·10	90 57 8·7	+3 18·90	−34 31·9	33·00	36·8
4 22 29 41	☄	42·751	11·970						
	4803 P.	43·150	4·405	4 3 36·38	89 28 39·8	+ 7·95	+37 40·4	4 3 44·33	90 6 20·2
	4810 P.	41·775	11·690	4 4 4·24	90 5 0·1	− 19·44	+ 1 23·6	44·80	23·7
	4858 P.	34·595	18·855	4 6 28·51	90 40 44·9	−2 42·47	−34 17·2	46·04	27·7
5 22 25 42	☄	43·305	14·081						
	4844 A.	44·002	18·607	4 15 45·29	90 9 38·3	+ 13·89	−22 32·4	4 15 59 18	89 47 5·9
	1280 A. G. (1)	43·330	5·125	4 15 58·22	89 2 31·2	+ 0·50	+44 36·1	58·72	7·3
	688 G.	42·100	20·636	4 16 23·39	90 19 47·6	− 24·00	−32 38·7	59·39	8·9
6 22 26 1	☄	43·590	14·086						
	5220 P.	45·387	24·051	4 26 48·84	90 15 23·1	+ 35·80	−49 37 6	4 27 24·64	89 25 45·5
	1329 A. G. (1)	44·295	5·130	4 27 9 81	88 41 7·6	+ 14·04	+44 36·1	23·85	43·7
	725 G.	43·884	11·702	4 27 18·24	89 13 50 6	+ 5·86	+11 49·3	24·10	39 9
	729 G.	40·515	11·164	4 28 25·45	89 11 10·8	−1 1·26	+14 31·1	24·19	41·9

Date G.M.T. d h m s	Name of Object.	Rect. Coords. R.A.	Rect. Coords. Dec.	Mean Pos. of stars 1901·0. R.A. h m s	Mean Pos. of stars 1901·0. N.P.D. ° ′ ″	$d\alpha$ m s	$d\delta$ ′ ″	Mean Pos. ☄ 1901·0 R.A. h m s	Mean Pos. ☄ 1901·0 N.P.D. ° ′ ″
May 7 22 24 28	☄	43·059	14·130						
	1378 A. G. (1)	43·360	14·478	4 37 54·03	89 4 47·1	+1 6·00	−1 44·2	4 38 0·03	89 3 2·9
	1386 A. G. (1)	40·885	11·260	4 38 43·33	88 48 43·6	− 43·31	+14 17·6	0·02	1·2
	5437 P.	38·200	20·924	4 39 37·14	89 36 52·1	−1 36·79	−33 50·0	0·35	2·1
8 22 23 32	☄	43·290	13·910						
	1453 A. G. (1)	45·550	13·852	4 47 5·01	88 39 22·6	+ 45·02	+ 0 16·7	4 47 50·03	88 39 39·3
	1462 A. G. (1)	41·717	18·397	4 48 21·78	89 2 1·8	− 31·34	−22 20·7	50·44	41·1
	1467 A. G. (1)	40·376	13·091	4 48 48 20	88 35 35·1	− 58·07	+ 4 4·7	50·13	39·8
12 22 18 35	☄	43·091	13·910						
	1712 A. G. (1)	45·083	14·751	5 20 0·79	87 10 39·2	+ 39·74	− 4 11·3	5 20 40·53	87 6 27·9
	1720 A. G. (1)	41·092	14·421	5 21 20·43	87 9 2·2	− 39·88	− 2 32·6	40·55	29·6
	1723 A. G. (1)	40·158	12·490	5 21 39·04	86 59 23·9	− 58·51	+ 7 4·3	40·53	28·2
13 22 20 3	☄	43·145	13·895						
	1779 A. G. (1)	47 634	14·438	5 26 2·77	86 46 58·9	+1 29·54	− 2 41·9	5 27 32·31	86 44 17·0
	1797 A. G. (1)	41·891	16·319	5 27 57·63	86 56 22·6	− 25·02	−12 4·3	32·61	18·3
	1801 A. G. (1)	39·125	17·175	5 28 52·74	87 0 38·5	−1 20·20	−16 19·8	32·54	18·7
14 22 44 52	☄	43·165	13·906						
	1834 A. G. (1)	43·460	8·606	5 33 57·52	85 56 6·2	+ 5·88	+26 23·6	5 34 3·40	86 22 29·8
	1835 A. G. (1)	42·590	17·079	5 34 15·20	86 38 17·7	− 11·47	−15 48·1	3·73	29·6
	1849 A. G. (1)	36·652	12·667	5 36 13·71	86 16 22·6	−2 10·06	+ 6 10·8	3·65	33·4

Date G.M.T. d h m s	Name of Object.	Rect. Coords. R.A.	Dec.	Mean Pos. of stars 1901·0. R.A. h m s	N.P.D. ° ′ ″	dα m s	dδ ′ ″	Mean Pos. R.A. h m s	N.P.D. 1901·0. ° ′ ″
May 16 22 27 1		43·110	13·910						
	1913 A. G. (1)	45·055	12·731	5 44 58·63	85 36 20·2	+ 38·86	+ 5 52·3	5 45 37·49	85 42 12·5
	1923 A. G. (1)	42·842	15·041	5 45 43·08	85 47 49·0	− 5·34	− 5 37·6	37·74	11·4
	1928 A. G. (1)	40·420	13·490	5 46 31·30	85 40 4·9	− 53·75	+ 2 5·5	37·55	10·4
19 22 41 13		42·955	13 914						
	2607 A. G. (2)	45·940	11·409	5 59 51·48	84 34 28 9	+ 59 72	+12 28·8	6 0 41·20	84 46 57·7
	2616 A. G. (2)	43·255	7·550	6 0 35·16	84 15 14·9	+ 5·98	+31 42·5	41·14	57·4
	2029 A. G. (1)	36·225	16 644	6 2 56·12	85 0 34·9	−2 14·66	−13 34·9	41·46	60·0
	2031 A. G. (1)	36·035	17·397	6 2 59·98	85 4 22·1	−2 18·46	−17 19·8	41·52	62·3
22 22 56 47		43·245	13·950						
	2772 A. G. (2)	46·210	15·961	6 12 22·34	84 8 42·3	+ 59·38	−10 0·6	6 13 21·72	83 58 41·7
	2781 A. G. (2)	45·073	14·734	6 12 45·16	84 2 34·7	+ 36·63	− 3 54·0	21·79	40·7
	2791 A. G. (2)	42·744	17·836	6 13 32·05	84 18 2·4	− 10·04	−19 22·1	22·01	40·3
23 22 51 8		42·935	14·040						
	2815 A. G. (2)	48·272	19·731	6 15 30·82	84 12 55·7	+1 46·83	−28 19·6	6 17 17·65	83 44 36·1
	2824 A. G. (2)	46·438	10·931	6 16 7·12	83 29 4·1	+1 10·16	+15 29·3	17·28	33·4
	2843 A. G. (2)	43·428	21·657	6 17 8·13	84 22 31·3	+ 9·88	−37 56·0	18·01	35·3
	2860 A. G. (2)	39·435	16·380	6 18 27·83	83 56 12·0	−1 10·08	−11 38·9	17·75	33·1
	2883 A. G. (2)	35·208	3·397	6 19 52·41	82 51 36·1	−2 35·16	+53 1·6	17·25	37·7

Date G.M.T.	Name of Object.	Rect. Coords. R.A.	Rect. Coords. Dec.	Mean Pos. of stars 1901·0. R.A.	Mean Pos. of stars 1901·0. N.P.D.	$d\alpha$	$d\delta$	Mean Pos. ☄ 1901·0. R.A	Mean Pos. ☄ 1901·0. N.P.D.
d h m s				h m s	° ′ ″	m s	′ ″	h m s	° ′ ″
May 25 22 37 18	☄	42·960	13·851						
	2939 A. G. (2)	45·520	12·663	6 23 32·50	83 10 25·0	+ 51·38	+ 5 55·2	6 24 23·88	83 16 20 2
	2948 A. G. (2)	42·376	8·440	6 24 35·27	82 49 20·8	− 11·71	+26 56·8	23·56	17·6
	2956 A. G. (2)	41·743	11·071	6 24 48·16	83 2 28·8	− 24·42	+13 50·6	23·74	19·4

	d h m	R.A. h m s	N.P.D. ° ′
Apr.	26 10 1	1 53 50	88 42
	31 22 25	3 6 12	90 46
May	9 22 30	4 57 8	88 6
	11 22 30	5 13 15	87 29
	17 22 30	5 51 18	85 20
	18 22 49	5 56 22	85 2
	20 22 45	6 5 31	84 29
	24 23 31	6 21 15	83 30
	27 23 0	6 31 7	82 51
	30 23 3	6 40 17	82 17
	31 22 59	6 42 36	82 6

Circle readings only, taken when the comet was seen between the clouds for a few seconds only. Probably correct to within about a minute of arc in either coordinate.

P. = Paris, G. = Greenwich 1880, A. = Argentine Genl., A. G. (1) Astron. Gesell., + 1° to + 5°, and (2) + 5° to + 10°.

Perth Observatory: 1901 *June* 24.

Errata in Mr. Cookson's Paper on a Floating Photographic Zenith Telescope

Page 316, line 11, *for* divining *read* devising.

„ 322, „ 5, *for* $\delta\phi$ *read* $2\delta\phi$.

„ 322, „ 4 from bottom, *for* ten *read* the.

„ 326, „ 6, Heading of Table should be:

	Mean Diff. Photograph and Scale in 0·0001 mm.	
	5 mm.	15 mm.

„ 327, „ 5 from bottom, *for* degrees *read* grammes.

„ 328, lines 1 and 4, *for* degrees *read* grammes.

„ 330, line 21 from bottom, *for* but *read* from.

„ „ „ 17 „ „ *for* and from *read* but for.

„ „ „ 16 „ „ dele "probable error due to error of."

Errata in Cape Observations of the Great Comet of 1901, *page* 510.

May 4, *for* $29^s{\cdot}23$ *read* $24^s{\cdot}23$.

May 5, *for* $9^s{\cdot}97$ *read* $8^s{\cdot}97$.